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ABSTRACT

This paper reviews pedagogical principles surrounding learning styles that have continued to attract educators, particularly those in English as a Second Language (ESL) to Integrative Learning Systems (ILS) as a learning medium. The paper first examines the rationale for using technology in education. It briefly defines Computer-Assisted Language Learning (CALL), Computer-Enhanced Language Learning (CELL), and integrative Computer-Assisted Language Learning (ICALL), and examines the similarities and differences between them. Five principles (Hoven, 1999) that should be considered when ILS is applied to ESL instruction are outlined. Four questions (Squires and McDougall, 1994) for evaluating an ILS are then outlined. The paper concludes that ILS can be used effectively to supplement traditional classroom instruction. (Contains 19 references.) (AEF)

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Choosing and Evaluating Effective ESL Integrative Learning Systems.

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Recent directions at the Higher Colleges of Technology (HCT) annual conference show clearly that there has never been a greater need to understand the importance of life-long learning. The path that Centre for Applied Research and Training (CERT) is paving for the HCT system represents an innovative response to the call to train and upgrade this nation's work force. To do this, we must look beyond the traditional classroom-textbook scenario and embrace more useful tools. Individualised, integrative learning systems, be they software programs or on-line courses are our bricks. Deciding how to choose the right material, shape and colour is a decision that we as instructors will inevitably face sometime in our teaching career. Understanding how to make the right choice is what this paper strives to explain.

1. Introduction

Integrative Learning Systems (ILS) are often touted as providing an array of benefits in the education arena, and the domain of English as a second language (ESL) learning has not been immune. Historically, there is much to suggest that ILS adapted for ESL purposes have been implemented on an ad hoc basis, and this is witnessed through the progression in labels that learning software has consequently acquired. On occasion, the more traditional term, Computer-Assisted Language Learning (CALL) has been supplanted by Computer-Enhanced Language Learning (CELL), or by prefixing an 'I' for integrative or intelligent varieties or more assertively, 'AI', which represents the artificial variety. Each time we have seen a change, there has been a corresponding surge (or at least claims) in the number of 'creative' features that the ILS has to offer. The last century, out of all of this development, saw the virtual school; perhaps the most complex form of ILS, which I believe, belongs to this genre. This is primarily because it continues to rely on the technological scaffolding, but seeks to address the many shortcomings of its predecessors.

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This paper will overview pedagogical principles surrounding learning styles that have continued to attract educators, particularly those in ESL to ILS as a learning medium. It will also develop a bank of principles, or a checklist that ILS users should embrace when developing or choosing an ILS.

1.1. Why use the Technological Approach?

Putting aside the social, vocational, pedagogic and catalytic reasons, (See Hawkbridge et al, 1990) I would like to focus on a line of reasoning offered by Kemmis, Atkin and Wright, (1977; quoted in Squires and McDougall, 1994) called the Educational Rationale, which I have found to provide a concise answer. While their framework is concerned with how to effectively design and evaluate software it does neatly describe what we are searching for when we look to educational software. Basically, software encompasses up to four paradigms: instructional, revelatory, conjectural and emancipatory. In each paradigm there is an attempt to ensure that software consistently incorporate any number of competing learning theories. These theories suggest that by relying on the 'genius' of computers, the student is able to systematically learn units of work; test hypotheses; and make discoveries in a simplified manner. Therefore, we find that the rationale of using technology is that it provides another avenue to enhancing the learning process.

There are two further theoretical aims in taking this approach. Firstly, there is research to suggest that self-instruction is particularly effective for intermediate learners when it is provided with some form of direct instruction. The second proposes that the Internet offers the same if not more learning potential than the traditional text book.

Both of these theories have received considerable attention. (Cf. Mogey, 1996) In relation to the first claim, there is much to suggest that self-instruction through ILS is not effective because it offers little more than, in Ferney's (1989) words, "canned knowledge". Squires and McDougall (1994) add that very often developers of ILS software cannot begin to appreciate how learners may use it. Regarding the second theory, there is similar concern; the main issue being the sheer volume of material available on the Internet. Warschauer's (1998) ethnographic study of the use of on-line learning in ESL also raises concerns as he found that both the students and the teacher often experienced frustration.

The key is to provide a wide variety of stimuli to facilitate the learning process. In addition, using the Internet has the potential to maximise immediate access to reading and

listening texts, writing components, as well as on-line dictionaries, thesaurus and other forms of reference and feedback materials. It offers learners the flexibility to learn how, when, and at the pace that they like, but with more support than many self-instruction courses. This is crucial, as there is recent pressure for ILS to incorporate a more active appreciation of socio-cultural learning theory, which I will address later. In conclusion, given the volatility of this debate, I frankly believe that there seems to be no clear evidence either for or against the use of ILS (including the internet) as a learning medium.

2. ILS, CALL and the whole basket of acronyms teaching ESL

In its simplest form, ILS is a self-contained, computer-mediated teaching tool, usually in the form of a software package, operating according to a learner's individual requirements. Principally, the idea of ILS as a learning tool is supported as an effective means of acquiring a second language for a whole plethora of reasons, and there is much debate that I could bring to this paper, but practical limitations prevail. It offers drills and practice; microworlds and games; tutorials; information retrieval from large databases; a variety of communication tools; a variety of texts including spoken, graphic and video images; and modeling options. In other words, it can supplement and even arguably replace, traditional learning methods. It enables individuality, flexible learning speeds and offers students, according to Mogey (1996) control over their learning as they are no longer held back by the entire class. Other researchers like Warschauer and Healey (1998) similarly point to the benefits that accrue to institutions that incorporate ILS in their syllabus.

ESL learners have seen many developments in ILS. Typically ILS have tended to be designed according to the learning theories of the time. Hence CALL programs of the 1950's reflected behaviouristic learning tendencies, aptly described by Warschauer (1998) as 'drill and kill' modes. These gave rise to communicative CALL models that enabled learners to test and hypothesise in a more interactive manner in line with cognitive theories of learning. Many software programs that reflect either of these learning methods are still widely available today; most are not without their problems. Even the newest packages like *The New Kid on the Block, TriplePlay Plus* and *All-in-one Language Fun* excel in the teaching of specific skills, but not in a multitude. It may be text reconstruction, reading comprehension exercises, listening focus or pronunciation drilling, but rarely a balanced medium. Moreover, there has been a complete failure to create programs that accurately,

grammatically and semantically correct users' input, a point noted by Davies (1997). Language learning demands these. Of course, the pace of technology binds us, and until such features as voice and accurate text recognition become the norm, the inadequacies of ILS software will be continually expounded. Warschauer (1996:1) states that the rationale has often been to rely on repeated drilling and a simple rewards system with occasional limited feedback along the way. I believe, even given these technological limitations, ILS has the potential to offer more.

In fact, these very deficiencies led to a growth in more communicative forms of CALL, including integrative CALL, (ICALL) as it attempted to become more intelligent and handle the demands that users required by incorporating multimedia. Hoven (1999) offers another variety: CELL. She suggests that software in this category enhances the role that computers play in the language learning process, and this is why she opts for this term. CELL should simultaneously increase the level of choice available to the learner and empower him or her to understand the choices they have available. While it appears that she has merely relabeled the wheel, her learner-centred demands create an excellent model for ILS, yet to be attained. Davies (1997) explains that in the past 20 years most attempts to train computers to interact in humanistic terms have failed because they suffer from what he has coined the "battery chicken syndrome". ILS enable self-instruction, but they are yet to be truly individualised.

What ILS developers have been more recently aiming to create in ICALL and CELL varieties is an interactive approach. This aims to incorporate socio-cultural learning theory that followed the constructivist boom, and its genre of software. The new approach extends from the work of Vgotsky who believed that social interaction best facilitates the learning process, and this, I believe, is the niche that Hoven's (1999) CELL model is seeking to fulfill. We are moving in the right direction.

2.1 Which Acronym then?

CALL, ICALL, or CELL; I believe there are fundamental links between them all, and we should consider the full wording of each label to appreciate this. We are concerned here with *computers*, *assistance* or *enhancement*; and *language learning*. The differences lie in the learning assumptions inherent in each package type. We need to appreciate the reasons why various authors have found it necessary to make greater and greater demands on ILS

by creating these terms. I believe we need to adopt ILS that implore a socio-cultural theory of learning. Although there is insufficient space here to elaborate on second language (L2) learning theories, for my part I am yet to be convinced that independent learning, using ILS or otherwise, will lead to mastery of a foreign language. As a supplement, on the other hand, I can see the merit in using educational software. ESL ILS that operate on the premise that learning is completely individualistic fail us. I believe ILS, when applied with some form of direct ESL instruction, should aim to consider the following principles.

1. Interaction and negotiation are important features of communication and therefore L2 learning.
2. Computers with appropriately designed software can play a mediating role between L2 learners and their sociocultural context.
3. Software can be designed to facilitate L2 learners' interaction with the computer, and negotiation of meaning from texts.
4. The essential characteristic of software is to enable learners to take control of both the content of the learning material, and their approach to making meaning from it.
5. Not all L2 learners, especially in the initial stages of L2 acquisition, want to, or are able, to take control of their learning. (Hoven 1999: 91)

These principles are fundamental to socio-cultural theory. Behavioural or cognitive packages do not provide a sufficient level of complexity to facilitate the learning requirements implicit in language learning and should therefore be avoided.

2.2. Evaluating ILS

Obviously there is a lot to consider when both designing and evaluating ILS for language learning purposes. They need to incorporate, as Jones and Mercer (1993) have noted, practical structural hints, factual knowledge, and feedback, all in a timely manner. They can aim to improve writing and vocabulary skills and communicative expression, but in different ways to what we have been used to. And this latter point is one we would do well to dwell on. We must try not to assess them like we would traditional textbooks and

classrooms. They are not humanistic in nature, cannot process random text nor interpret spoken discourse. Squires and McDougall (1994) suggest that such software *extends* and *supports* learning. It is on this basis that they also reject many of the checklists that tend to focus on questions like, "What does this package do?"(p.66). Consequently, we need to evaluate ILS in light of the benefits they do offer, and not dwell on the constraints as Hoven(1999), Ferney (1989) and others have done. As Davies (1997:9) implies, "No computer program stands or falls on its own merits, no more than any course book or audio cassette." I agree. The charm of using ILS is that it supplements the learning process by attracting those individuals who wish to take responsibility for their learning experience.

For the purpose of this paper then, I wish to base my evaluation of an effective ILS, according to four questions offered for consideration by Squires and McDougall.

1. What are the levels of learner control, task complexity, and challenge offered by the package?
2. How effective is the design in affording learners the intended level of control?
3. How are learners helped to cope with the complexity of the software?
4. What methods and approaches are used to provide learners with a challenge? (Squires and McDougall 1994: 90,91)

As I have indicated, I wish to stress in this paper that educational software has a different agenda to traditional teaching methods, and we must therefore evaluate it through new eyes. I therefore call for ILS that consider and incorporate both the above five socio-cultural principles mentioned by Hoven, in conjunction with the questions asked above by Squires and McDougall.

Moreover, there is much to suggest that integrative learning systems will soon become one of the most common learning tools that we will all employ to educate ourselves. And the single, most efficient ILS will be delivered via the Internet.

The Age of Information will be driven by the need to continue learning

> throughout one's work-life, and one of the most effective ways-in terms of time efficiency and cognitive learning will be through the Internet. This fact will cause revolutionary changes in the way adults learn, the way courses are put together and how higher education is structured. (Thomas and Metzner 2000.)

The direction that CERT is taking clearly demonstrates this level of understanding. We already have the technology to incorporate audio and visual forms of communication; real-time, on-line feedback channels; and enable heuristic forms of learning. All that remains is to build the scaffolding that best encapsulates the learning theory. Obviously CERT is not limiting itself to ESL/EFL programs, for it will strive to reach as many players as possible.

For those designing or choosing ILS, it is important to realize the full potential of all that is available. Access to Internet resources, synchronous and asynchronous writing opportunities and even online tutor systems all enable the individual to study English by following a socio-cultural learning approach. From this perspective, an ILS offers a challenging, complexity of exercises that will undoubtedly facilitate L2 learning. This makes it an attractive learning option to supplement the traditional classroom.

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